



## 9.13 Township of Hanover

This section presents the jurisdictional annex for the Township of Hanover.

### 9.13.1 Hazard Mitigation Plan Point of Contact

The following individuals have been identified as the hazard mitigation plan's primary and alternate points of contact.

Primary Point of Contact	Alternate Point of Contact
Thomas Quirk 1000 Route 10, Whippany, NJ 973-428-2520 tquirk@hanovertownship.com	Gerardo Maceira, PE 1000 Route 10, Whippany, NJ 973-428-2488 gmaceira@hanovertownship.com

### 9.13.2 Municipal Profile

The Township of Hanover is located in the eastern portion of Morris County. It is bordered to the north by the Township of Parsippany-Troy Hills, on the east by the Township of East Hanover, to the south by the Borough of Florham Park and Township of Morris, and to the west by the Borough of Morris Plains. It has a total area of 10.73 square miles. According to the U.S. Census, the 2010 population for the Township of Hanover was 13,712.

The Township is a residential-industrial community with most of its industrial facilities located in the vicinity of State Route 10, which is a major east-west road in the Township. The Township has unincorporated communities – Whippany and Cedar Knolls. Morris County's largest airport facility, Morristown Airport, is located in the southern part of the Township adjacent to a large swamp.

### Growth/Development Trends

The following table summarizes recent residential/commercial development since 2010 to present and any known or anticipated major residential/commercial development and major infrastructure development that has been identified in the next five years within the municipality.

**Table 9.13-1. Growth and Development**

Property or Development Name	Type (e.g., Res., Comm.)	# of Units/Structures	Location (address and/or Block & Lot)	Known Hazard Zone(s)	Description/Status of Development
<b>Recent Development from 2010 to present</b>					
Shop Rite	Commercial	3 Bldgs.	170 E. Hanover Ave	NEHRP: D	Large market opened, two more structures will be built on-site
Bayer Corp.	Commercial	3 Bldgs.	1 Bayer Blvd.	NEHRP: D	North American Corporate Headquarters
Woodmount Properties	Residential	126 Units/9 Buildings	Cedar Knolls Road	NEHRP: D	Rental apartments
Waterview	Residential	60 Units/5 Buildings	American Road	NEHRP: D	Townhouses
Justin Court	Residential	78 Units/6 Bldgs.	Justin Court	NEHRP: D	Rental apartments



Table 9.13-1. Growth and Development

Property or Development Name	Type (e.g., Res., Comm.)	# of Units/Structures	Location (address and/or Block & Lot)	Known Hazard Zone(s)	Description/Status of Development
Viera in Hanover	Residential	40 Units/ 10 Bldgs.	Viera Drive	None	Townhouses
The Grande	Residential	160 Units/ 17 Bldgs.	Papermill Drive	NEHRP: D	Townhomes
Red Bull Training Center	Commercial	5 Buildings and multiple fields	Melanie Lane	Flood: 1% Chance; NEHRP: D	Commercial
<b>Known or Anticipated Development in the Next Five Years</b>					
Wegmans	Commercial	5 buildings	Sylvan Way	None	New shopping complex
MetLife	Commercial	2 Buildings	Whippany Road	None	Corporate Headquarters
Laurel Estates	Residential	16 dwellings	Barberie Court	NEHRP: D	Single Family homes
Quick Check	Commercial	1 Bldg. and 8 pumps	Route 10	None	Commercial

\* Only location-specific hazard zones or vulnerabilities identified.

### 9.13.3 Natural Hazard Event History Specific to the Municipality

Morris County has a history of natural and non-natural hazard events as detailed in Volume I, Section 5.0 of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities. For the purpose of this plan update, events that have occurred in the County from 2008 to present were summarized to indicate the range and impact of hazard events in the community. Information regarding specific damages is included, if available, based on reference material or local sources. This information is presented in the table below. For details of these and additional events, refer to Volume I, Section 5.0 of this plan.

Table 9.13-2. Hazard Event History

Dates of Event	Event Type	FEMA Declaration # (If Applicable)	County Designated?	Summary of Damages/Losses
March 8, 2008	Flash Flood	N/A	N/A	Trees and wires down, flooding in Whippany River area of Route 10 and Whippany Road. Police, Fire, DPW overtime
June 16, 2008	Thunderstorms	N/A	N/A	Trees and wires down. Police, Fire, DPW overtime
October 28, 2008	Heavy Rain, Snow, Strong Wind	N/A	N/A	Wires down, flooding, Police, Fire DPW overtime
February 12, 2009	High Wind	N/A	N/A	Trees, wires and one street light down, Police, Fire and DPW overtime
August 21, 2009	Lightning	N/A	N/A	Short power failure.
March 12 – April 15, 2010	Severe Storms and Flooding	DR-1897	Yes	Flooding of Whippany River at Route 10 and Whippany Road. Police, Fire and DPW overtime
November 17, 2010	Thunderstorms	N/A	N/A	Street light, trees and wires down. Stop sign damaged. Police overtime



Table 9.13-2. Hazard Event History

Dates of Event	Event Type	FEMA Declaration # (If Applicable)	County Designated?	Summary of Damages/Losses
December 26-27, 2010	Severe Winter Storm and Snowstorm	DR-1954	Yes	DPW, Police, Fire overtime, roadways snow covered and plowing operations prolonged
February 1, 2011	Winter Storm	N/A	N/A	Icy roadways. DPW delayed response due to shortage of salt to treat roadways.
August 26 – September 5, 2011	Hurricane Irene	DR-4021	Yes	Sporadic power outages; Debris removal, flooding issues around Whippany River Route 10. Severe damage to US Post Office, homes and businesses along Route 10 and Bridge over river. Police, Fire DPW overtime
September 2, 2011	River Rescue	N/A	N/A	Police, Fire resources, police vehicle loss, victims transported, mutual aid response
October 29, 2011	Severe Storm	DR-4048	Yes	Tree, power line damage, debris removal. Power outages
October 26 – November 8, 2012	Hurricane Sandy	DR-4086	Yes	Power outages, debris removal, Police, Fire, DPW overtime. Community Center opened up as a charging station
June 18, 2013	Flash Flood	N/A	N/A	Flooding of Whippany River areas
April 30, 2014	Flood	N/A	N/A	Flooding of several area along Whippany River. Parsippany Road closed temporarily,
May 1, 2014	Flood	N/A	N/A	As a result of the April 30 <sup>th</sup> event, the feeder stream on Parsippany Road at the bridge as cleaned of debris. There was not flooding or damage as a result of the May 1 event.

## Hazard Vulnerabilities and Ranking

The hazard profiles in Section 5.0 of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the hazard vulnerabilities and their ranking in the Township of Hanover. For additional vulnerability information relevant to this jurisdiction, refer to Section 5.0.

## Hazard Risk/Vulnerability Risk Ranking

The table below summarizes the hazard risk/vulnerability rankings of potential hazards for the Township of Hanover.

Table 9.13-3. Hazard Risk/Vulnerability Risk Ranking

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard <sup>a, c</sup>	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking <sup>b</sup>
Drought	Damage estimate not available	Frequent	27	Medium
Dam Failure	Damage estimate not available	Occasional	24	Medium
Earthquake	500-year MRP: \$7,461,258 2,500-year MRP: \$131,472,185	Occasional	32	High
Extreme Temperature	Damage estimate not available	Frequent	27	Medium
Flood	1% Annual Chance: \$21,518,678	Frequent	18	Medium



Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard <sup>a, c</sup>	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking <sup>b</sup>
Geological Hazards	Exposed to Class A and Class B: \$0	Occasional	12	Low
Severe Storm	100-Year MRP: \$4,038,535 500-year MRP: \$22,372,631	Frequent	48	High
	Annualized: \$286,062			
Winter Storm	1% GBS: \$65,827,743 5% GBS: \$329,138,716	Frequent	54	High
Wildfire	Estimated Value Exposed to Extreme, Very High and High: \$9,214,044	Rare	6	Low
Disease Outbreak	Damage estimate not available	Frequent	36	High
Hazardous Materials	Damage estimate not available	Frequent	36	High
Infestation	Damage estimate not available	Frequent	18	Medium

Notes:

- Building damage ratio estimates based on FEMA 386-2 (August 2001)
- The valuation of general building stock and loss estimates was based on custom inventory for the municipality.  
High = Total hazard priority risk ranking score of 31 and above  
Medium = Total hazard priority risk ranking of 20-30+  
Low = Total hazard risk ranking below 20
- Loss estimates for the severe storm and severe winter storm hazards are structural values only and do not include the value of contents.
- Loss estimates for the flood and earthquake hazards represent both structure and contents.
- The HAZUS-MH earthquake model results are reported by Census Tract.

### National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Township of Hanover.

**Table 9.13-4. NFIP Summary**

Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	# Severe Rep. Loss Prop. (1)	# Policies in 100-year Boundary (3)
Township of Hanover	65	63	\$3,478,082.28	5	0	18

Source: FEMA Region 2, 2014

- Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA Region 2, and are current as of 9/30/2014. Please note the total number of repetitive loss properties includes the severe repetitive loss properties. The number of claims represents claims closed by 9/30/14.
- Total building and content losses from the claims file provided by FEMA Region 2.
- The policies inside and outside of the flood zones is based on the latitude and longitude provided by FEMA Region 2 in the policy file.

Notes: FEMA noted that where there is more than one entry for a property, there may be more than one policy in force or more than one GIS possibility.

A zero percentage denotes less than 1/100th percentage and not zero damages or vulnerability as may be the case.

Number of policies and claims and claims total exclude properties located outside County boundary, based on provided latitude and longitude.

### Critical Facilities

The table below presents HAZUS-MH estimates of the damage and loss of use to critical facilities in the community as a result of a 1-and 0.2-percent annual chance flood events.



Table 9.13-5. Potential Flood Losses to Critical Facilities

Name	Type	Exposure	Potential Loss from 1% Flood Event		
		1% Event	Percent Structure Damage	Percent Content Damage	Days to 100%(2)
Lake Parsippany Dike	Dam	X	X	-	-
Texas Eastern Gas Transmission	Natural Gas	X	X	-	-
Whippany-Suburban Energy Services	Natural Gas	X	X	-	-

Source: HAZUS-MH 2.1

Note (1): HAZUS-MH 2.1 provides a general indication of the maximum restoration time for 100% operations. Clearly, a great deal of effort is needed to quickly restore essential facilities to full functionality; therefore this will be an indication of the maximum downtime (HAZUS-MH 2.1 User Manual).

Note (2): In some cases, a facility may be located in the DFIRM flood hazard boundary; however HAZUS did not calculate potential loss. This may be because the depth of flooding does not amount to any damages to the structure according to the depth damage function used in HAZUS for that facility type. Further, HAZUS-MH may estimate potential damage to a facility that is outside the DFIRM because the model generated a depth grid beyond the DFIRM boundaries.

NA Not available

X Facility located within the DFIRM boundary

- Not calculated by HAZUS-MH 2.1

### Other Vulnerabilities Identified

According to the 2015 preliminary FEMA Flood Insurance Study (FIS) for Morris County, flooding in Hanover Township is mainly from the Whippany River. The River typically floods as a result of heavy rains during the summer and fall months. Due to the low permeability of certain soils within the Township, some areas are subject to frequent flooding and ponding of surface water during periods of heavy rain (FEMA FIS 2015).

### 9.13.4 Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Community classification
- National Flood Insurance Program
- Integration of Mitigation Planning into Existing and Future Planning Mechanisms

### Planning and Regulatory Capability

The table below summarizes the regulatory tools that are available to the Township of Hanover.

Table 9.13-6. Planning and Regulatory Tools

Tool/Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept./Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
<b>Planning Capability</b>				
Master Plan	Yes	Local	Planning Board	November 2013
Capital Improvements Plan	Yes	Local	Planning Board	2014
Floodplain Management/Basin Plan	Yes	Local	Township Engineer	Chapter 141
Stormwater Management Plan	Yes	Local	Planning Board	Chapter 166-104.1, March 2005



Tool/Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept./Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Open Space Plan	Yes	Local	Planning Board	2011
Stream Corridor Management Plan	No			
Watershed Management or Protection Plan	No			
Economic Development Plan	No			
Comprehensive Emergency Management Plan	Yes	Local	OEM	Need date from Tom
Emergency Response Plan	No			
Post-Disaster Recovery Plan	No			
Transportation Plan	Yes	Local	Planning Board	October 2012
Strategic Recovery Planning Report	No			
Other Plans:				
<b>Regulatory Capability</b>				
Building Code	Yes	State & Local	Building Dept.	State Uniform Construction Code Act (N.J.S. 52:27D-119 et seq.)
Zoning Ordinance	Yes	Local	Zoning Officer	Chapter 166
Subdivision Ordinance	Yes	Local	Zoning Officer	Chapter 166
NFIP Flood Damage Prevention Ordinance	Yes	Federal, State, Local	Floodplain Administrator	Chapter 141
NFIP: Cumulative Substantial Damages	No			
NFIP: Freeboard	No	State		
Growth Management Ordinances	No			
Site Plan Review Requirements	Yes	Local	Planning/Zoning	Chapter 166
Stormwater Management Ordinance	Yes	Local	Planning Board	March 2005
Municipal Separate Storm Sewer System (MS4)	Yes	State	NJ DEP	N.J.A.C. 7:14A-25.1
Natural Hazard Ordinance	No			
Post-Disaster Recovery Ordinance	No			
Real Estate Disclosure Requirement	No	State	Division of Consumer Affairs	N.J.A.C. 13:45A-29.1
Other [Special Purpose Ordinances (i.e., sensitive areas, steep slope)]	No			



### Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Township of Hanover.

**Table 9.13-7. Administrative and Technical Capabilities**

Resources	Is this in place? (Yes or No)	Department/Agency/Position
<b>Administrative Capability</b>		
Planning Board	Yes	Administration/Planner
Mitigation Planning Committee	No	
Environmental Board/Commission	Yes	Administration
Open Space Board/Committee	Yes	Administration
Economic Development Commission/Committee	Yes	Administration
Maintenance Programs to Reduce Risk	Yes	Engineering/Dept. of Public Works
Mutual Aid Agreements	Yes	Administration
<b>Technical/Staffing Capability</b>		
Planner(s) or Engineer(s) with knowledge of land development and land management practices	Yes	Blais Brancheau, P.P. Gerardo Maceira, P.E.
Engineer(s) or Professional(s) trained in construction practices related to buildings and/or infrastructure	Yes	Gerardo Maceira, P.E. Sean Donlon
Planners or engineers with an understanding of natural hazards	Yes	Blais Brancheau, P.P. Gerardo Maceira, P.E.
NFIP Floodplain Administrator	Yes	Gerardo Maceira, PE
Surveyor(s)	Yes	Consultant, Richard Smith
Personnel skilled or trained in GIS and/or Hazus-MH applications	No	
Scientist familiar with natural hazards	No	
Emergency Manager	Yes	Thomas Quirk
Grant Writer(s)	No	
Staff with expertise or training in benefit/cost analysis	Yes	Silvio Esposito, CMFO
Professionals trained in conducting damage assessments	Yes	Gerardo Maceira, P.E. Sean Donlon

### Fiscal Capability

The table below summarizes financial resources available to Township of Hanover.

**Table 9.13-8. Fiscal Capabilities**

Financial Resources	Accessible or Eligible to Use (Yes/No/Don't Know)
Community Development Block Grants (CDBG, CDBG-DR)	Yes
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for specific purposes	Yes
User fees for water, sewer, gas, or electric service	No
Impact Fees for homebuyers or developers of new development/homes	Yes
Stormwater Utility Fee	No
Incur debt through general obligation bonds	Yes





Financial Resources	Accessible or Eligible to Use (Yes/No/Don't Know)
Incur debt through special tax bonds	No
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	No
Other Federal or State Funding Programs	Yes
Open Space Acquisition Funding Programs	Yes
Other	No

### Community Classifications

The table below summarizes classifications for community program available to the Township of Hanover.

**Table 9.13-9. Community Classifications**

Program	Do you have this? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	N/A	N/A
Building Code Effectiveness Grading Schedule (BCEGS)	Yes	2	2010
Public Protection (ISO Fire Protection Classes 1 to 10)	Yes	Class 4-Fire Dist. No. 2 Class 4 – Fire Dist. No. 3	June 2013
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A
Disaster/Safety Programs in/for Schools	Yes	N/A	N/A
Organizations with Mitigation Focus (advocacy group, non-government)	No		
Public Education Program/Outreach (through website, social media)	Yes	N/A	Nixle,
Public-Private Partnerships	No		

N/A = Not applicable. NP = Not participating. - = Unavailable. TBD = To be determined.

The classifications listed above relate to the community's ability to provide effective services to lessen its vulnerability to the hazards identified. These classifications can be viewed as a gauge of the community's capabilities in all phases of emergency management (preparedness, response, recovery, and mitigation) and are used as an underwriting parameter for determining the costs of various forms of insurance. The CRS class applies to flood insurance while the BCEGS and Public Protection classifications apply to standard property insurance. CRS classifications range on a scale of 1 to 10 with class 1 being the best possible classification, and class 10 representing no classification benefit. Firewise classifications include a higher classification when the subject property is located beyond 1,000 feet of a creditable fire hydrant and is within five road miles of a recognized Fire Station.

Criteria for classification credits are outlined in the following documents:

- The Community Rating System Coordinators Manual
- The Building Code Effectiveness Grading Schedule
- The ISO Mitigation online ISO's Public Protection website at <http://www.isomitigation.com/ppc/0000/ppc0001.html>
- The National Weather Service Storm Ready website at <http://www.weather.gov/stormready/howto.htm>
- The National Firewise Communities website at <http://firewise.org/>





### Self-Assessment of Capability

The table below provides an approximate measure of the Hanover's capability to work in a hazard-mitigation capacity and/or effectively implement hazard mitigation strategies to reduce hazard vulnerabilities.

**Table 9.13-10. Self-Assessment Capability for the Municipality**

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?)*	Moderate	High
Planning and Regulatory Capability		X	
Administrative and Technical Capability			X
Fiscal Capability		X	
Community Political Capability		X	
Community Resiliency Capability		X	
Capability to Integrate Mitigation into Municipal Processes and Activities.		X	

### National Flood Insurance Program

#### NFIP Floodplain Administrator

Gerardo Maceira, PE, Township

#### Flood Vulnerability Summary

Flooding in Hanover Township is mainly from the Whippany River. The River typically floods as a result of heavy rains during the summer and fall months. Due to the low permeability of certain soils within the Township, some areas are subject to frequent flooding and ponding of surface water during periods of heavy rain (FEMA FIS 2015). Other areas that routinely flood (Horse Hill Road, North Jefferson Road) are as a result of insufficient sized stormwater infrastructure and/or topographic conditions.

#### Resources

The FPA is the sole person assuming the responsibilities of floodplain administration; however, contract staff is available if needed to include GIS mapping services. Services and functions provided by the NFIP FPA include review/comment site plan reviews, perform inspection of impacted property, manage design solutions, damage assessment, GIS and website section for flood zone determination, and mitigation information. Elevation certifications are obtained by private outside vendor. The FPA states that the Township has a good background of experience in floodplain administration but that can always be improved with more current and up-to-date educational tools and he would consider attending continuing education and/or certification training on floodplain management if offered.

#### Compliance History

The Township maintains NFIP compliance.

#### Regulatory

The Townships' ordinances follow prescribed federal and state outlines. Additionally, other local ordinances, plans or programs that support floodplain management and meet NFIP requirements in the Borough include ordinances that requires acknowledgement or floodplain elevation on any new structures to include stormwater



management ordinances which comply with DEP regulations. The Township of Hanover does not participate in the Community Rating System (CRS) program.

### **Integration of Hazard Mitigation into Existing and Future Planning Mechanisms**

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For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of this planning effort, each community was surveyed to obtain a better understanding of their community's progress in plan integration. A summary is provided below. In addition, the community identified specific integration activities that will be incorporated into municipal procedures.

#### **Planning**

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The Township of Hanover Land Use Plan (2013) aims to preserve the existing character of the community while planning for future development. The Plan details recommendations for each zoning district in the Township; specific design standards for development are recommended in the zoning districts adjacent to the Whippany River stream corridor and adjacent to or containing wetlands to preserve and protect the water quality and quantity of these areas. These goals and recommendations are built upon those from a 2004 Land Use Amendment for the Town Center.

The Township is located in the Highlands Planning Area and the goals and objectives of the Open Space and Recreation Plan Update (2011) include identifying, acquiring and preserving property to enhance the quality of life for residents, expand the park system and greenway connections, and preserve environmentally sensitive areas. The Plan recommends multiple actions for mitigation including, reviewing ordinances and working with the Planning Board to create legislation that requires implementation of bioswales and other forms of green infrastructure to reduce impervious; priority areas for reducing impervious cover are areas where there is high potential for groundwater recharge.

The 2005 Stormwater Management Plan was adopted as a means to reduce the impacts on public health and the infrastructure by flooding caused by stormwater runoff, as well as increased soil erosion and nonpoint source pollution. The Plan identifies the major rivers and streams within the Township and details how they are affected by stormwater runoff. Mitigation actions include changes to existing ordinances and adoption of new ordinances, including riparian buffer and steep slopes regulations. If a new development cannot provide satisfactory stormwater management on site, a mitigation project can be implemented by the developer within the same drainage area.

#### **Regulatory and Enforcement**

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The Township has multiple ordinances pertaining to the mitigation of hazards. These ordinances include the NFIP Flood Damage Prevention Ordinance, a fire prevention ordinance, a floodplain management ordinance, a hazardous substance discharge and recovery costs ordinance, a snow and ice removal ordinance, and a soil removal ordinance.

#### **Operational and Administration**

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The Township has established an Environmental Commission and Open Space Committee that aid in planning decisions to support the conservation and preservation of the Township's critical environmental features.



### **Fiscal**

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The Township established an Open Space, Parkland and Facilities Preservation Trust Fund of \$0.02 per \$100 of assessed value and a Township Tree Fund to aid in funding open space acquisition and preservation projects.

### **Education and Outreach**

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The Township currently utilizes the Nixle alert system to notify residents of upcoming emergency events. The Police Department will also post emergency information to the Department's website, as well as on their Facebook page. The Township's webpage provide information for residents on seasonal hazards to include Tick Borne Diseases.

## **9.13.5 Mitigation Strategy and Prioritization**

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This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritization.

### **Past Mitigation Initiative Status**

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The following table indicates progress on the community's mitigation strategy identified in the 2010 Plan. Actions that are carried forward as part of this plan update are included in the following subsection in its own table with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under 'Capability Assessment' presented previously in this annex.



**Table 9.13-11. Past Mitigation Initiative Status**

2010 Mitigation Action	Lead	Status (In progress, No progress, Complete)	Describe Status	Next Step (Include in 2015 HMP, Discontinue)	Describe Next Step
Hanover 1: Relocation of Whippany Fire Department on 440 Route 10.	Stationhouse Commander	In Progress	20% complete, Purchased property, design bid released, on-going negotiations with selected bidder	Include in 2015 HMP	Continue with process and selected bidder
Hanover 2: Retrofit building/secure structures (tent) outside of Cedar Knolls Fire House at 82 Ridgedale Avenue.	Board of Fire Commissioner District 3	In Progress	20% Architects working on current building design and retrofit to eliminate need for outside temp structure	Include in 2015 HMP	Identify funding once designed is completed
Hanover 3: Backup power for DPW on 25 North Jefferson Road, Whippany.	DPW Superintendent	In Progress	40% of funding is in place, engineer hired to develop design, project bid expected to be sent out and award end of 2014	Include in 2015 HMP	Send out bid, make award, proceed to construction
Hanover 4: Backup power upgrade for the Community Center (shelter) on 15 North Jefferson Road.	Engineer	No Progress	0% No progress has been made on this initiative. Several energy saving improvements have been made of the electrical capacities in the building	Include in 2015 HMP	Conduct a load analysis of building to determine if current generator can supply air conditioning to building.
Hanover 5: Burying power lines along Whippany Road and Route 10 area.	Engineer	No Progress	No progress due to the Township having no jurisdiction	Discontinue	Township has no legal right to complete this initiative
Hanover 6: Engineering study to improve drainage and conveyance along Route 10, Parsippany Road, and Horsehill Road.	Engineer	No Progress	1% No progress to this initiative due to budget and personnel restraints	Include in 2015 HMP	Route 10 and Parsippany road will be deleted from this initiative as they are county roadways outside of Township jurisdictions. When funding allows, a consultant will be hired to conduct a drainage study of the Horsehill Road east end. This initiative will be revised and included
Hanover 7: Hazard threat study and protection of Suburban Propane Delivery Railroad line and pipes.	Engineer	No Progress	1% No progress due to budget and personnel restraints.	Include in 2015 HMP	Revised initiative: Open dialog and develop relationship with Suburban Propane to discuss potential hazards and identify protective measures.
Hanover 8: Elevation/acquisition of eight repetitive loss properties on Route 10.	Hanover OEM	In Progress	5% Property owners reluctant to have acquired. Two abandoned properties are bank owned. Coordination with bank is	Include in 2015 HMP	Revise initiative to state: Develop list of RL and SRL properties and obtain elevation or acquisition interest from homeowners.

**Table 9.13-11. Past Mitigation Initiative Status**

2010 Mitigation Action	Lead	Status (In progress, No progress, Complete)	Describe Status	Next Step (Include in 2015 HMP, Discontinue)	Describe Next Step
			sporadic. Blue Acres application was denied in 2012.		
Hanover 9: Elevation/acquisition of one repetitive loss properties on Boulevard Road.	Hanover OEM	No Progress	0% No progress due to budget	Discontinue	Merge into new initiative from old initiative 8
Hanover 10: Elevation/acquisition of one repetitive loss properties on Whippany Road.	Hanover OEM	No Progress	0% No progress due to budget	Discontinue	Merge into new initiative from old initiative 8
Hanover 11: Develop all-hazards public education and outreach program for hazard mitigation and preparedness	Local and County OEM	No Progress	0% No progress due to budget and personnel	Include in 2015 HMP	Include in plan update. Update webpage and CERT team revitalization and training.



### Proposed Hazard Mitigation Initiatives for the Plan Update

The Township of Hanover participated in a mitigation action workshop in January 2015 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 ‘Selecting Appropriate Mitigation Measures for Floodprone Structures’ (March 2007) and FEMA ‘Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards’ (January 2013).

Table 9.13-12 summarizes the comprehensive-range of specific mitigation initiatives the Township of Hanover would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6, 14 evaluation/prioritization criteria are used to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing your actions as ‘High,’ ‘Medium,’ or ‘Low.’ The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.13-13 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan update.



**Table 9.13-12. Proposed Hazard Mitigation Initiatives**

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CBS Category
TH-1 (old Hanover 1)	Relocation of Whippany Fire Department on 440 Route 10.	Existing	Flood	G-3, G-4	Stationhouse Commander	High	High	Municipal Budget	Short Term DOF	High	SIP	PP
TH-2 (old Hanover 2)	Retrofit building/secure structures (tent) outside of Cedar Knolls Fire House at 82 Ridgedale Avenue.	Existing	Flood, Wind, Severe Storm	G-3, G-4	Board of Fire Commissioner District 3	High	Medium	Municipal Budget	Short Term DOF	High	SIP	PP
TH-3 (old Hanover 3)	Backup power for DPW on 25 North Jefferson Road, Whippany.	Existing	All	G-3, G-4	DPW Superintendent	High	Medium	HMGP, Municipal Budget	Short Term DOF	Medium	SIP	PP
TH-4 (old Hanover 4)	Backup power upgrade for the Community Center (warming/cooling center) on 15 North Jefferson Road-Conduct a load analysis of building to determine if current generator can supply air conditioning to building.	Existing	All	G-3, G-4	Engineer	High	Medium	HMA, HMGP Municipal Budget	Short Term DOF	Medium	SIP	PP
TH-5 (old Hanover 6)	Engineering study to improve drainage and conveyance along Parsippany Road and Horsehill Road.	N/A	Flood	G-2	Engineer	Medium	Medium	Municipal Budget	Long Term DOF	Medium	LPR	PR
TH-6 (old Hanover 7)	Open dialog and develop relationship with Suburban Propane to discuss potential hazards and identify protective measures.	Existing	All	G-1	Engineer, OEM	High	Medium	Municipal Budget	Long Term DOF	Low	LPR	PR
TH-7 (old Hanover 8-10)	Develop list of RL and SRL properties and obtain elevation or acquisition interest from homeowners.	Existing	Flood	G-1, G-2, G-3	Hanover OEM	High	Medium	Municipal Budget	Long Term DOF	Low	LPR	PR
TH-8 (old Hanover 11)	Develop all-hazards public education and outreach program for hazard mitigation and preparedness to include update of webpage with hazard mitigation and preparedness information.	N/A	All	G-1	Local and County OEM	High	Low	Municipal and County Budget	Short Term DOF	Medium	EAP	PE





Table 9.13-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
TH-9	Revitalize CERT program to include recruitment, training and acquisition of equipment.	N/A	All	G-1, G-3	Hanover OEM	Medium	Low	Municipal Budget, State CERT program funding	Short Term DOF	Medium	EAP	PE

**Notes:**

Not all acronyms and abbreviations defined below are included in the table.

\*Does this mitigation initiative reduce the effects of hazards on new and/or existing buildings and/or infrastructure? Not applicable (N/A) is inserted if this does not apply.

**Acronyms and Abbreviations:**

CAV	Community Assistance Visit
CRS	Community Rating System
DPW	Department of Public Works
FEMA	Federal Emergency Management Agency
FPA	Floodplain Administrator
HMA	Hazard Mitigation Assistance
N/A	Not applicable
NFIP	National Flood Insurance Program
NJDEP	New Jersey Department of Environmental Protection
NJOEM	New Jersey Office of Emergency Management
OEM	Office of Emergency Management

**Potential FEMA HMA Funding Sources:**

FMA	Flood Mitigation Assistance Grant Program
HMGP	Hazard Mitigation Grant Program
PDM	Pre-Disaster Mitigation Grant Program
RFC	Repetitive Flood Claims Grant Program
SRL	Severe Repetitive Loss Grant Program

**Timeline:**

Short	1 to 5 years
Long Term	5 years or greater
OG	On-going program
DOF	Depending on funding

**Costs:****Benefits:**



Where actual project costs have been reasonably estimated:

Low	< \$10,000
Medium	\$10,000 to \$100,000
High	> \$100,000

Where actual project costs cannot reasonably be established at this time:

Low	Possible to fund under existing budget. Project is part of, or can be part of an existing on-going program.
Medium	Could budget for under existing work plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.
High	Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.

Where possible, an estimate of project benefits (per FEMA's benefit calculation methodology) has been evaluated against the project costs, and is presented as:

Low=	< \$10,000
Medium	\$10,000 to \$100,000
High	> \$100,000

Where numerical project benefits cannot reasonably be established at this time:

Low	Long-term benefits of the project are difficult to quantify in the short term.
Medium	Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.
High	Project will have an immediate impact on the reduction of risk exposure to life and property.

Mitigation Category:

- *Local Plans and Regulations (LPR)* – These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.
- *Structure and Infrastructure Project (SIP)*-These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.
- *Natural Systems Protection (NSP)* – These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.
- *Education and Awareness Programs (EAP)* – These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities

CRS Category:

- *Preventative Measures (PR)*-Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.
- *Property Protection (PP)*-These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.
- *Public Information (PI)*-Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.
- *Natural Resource Protection (NR)*-Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
- *Structural Flood Control Projects (SP)*-Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.
- *Emergency Services (ES)*-Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities



Table 9.13-13. Summary of Prioritization of Actions

Mitigation Action/Project Number	Mitigation Action/Initiative	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High/Medium/Low
TH-1 (old Hanover 1)	Relocation of Whippany Fire Department	1	1	1	1	1	1	1	1	1	1	1	0	1	1	13	High
TH-2 (old Hanover 2)	Retrofit building/secure structures (tent) outside of Cedar Knolls Fire House	1	1	1	1	1	1	1	1	1	1	1	0	1	1	13	High
TH-3 (old Hanover 3)	Backup power for DPW on 25 North Jefferson Road,	1	1	1	1	1	1	0	0	1	1	1	0	1	1	11	Medium
TH-4 (old Hanover 4)	Backup power upgrade for the Community Center (warming/cooling center)	1	1	1	1	1	1	0	0	1	1	1	0	1	1	11	Medium
TH-5 (old Hanover 6)	Engineering study to improve drainage and conveyance along Parsippany Road and Horsehill Road.	1	0	1	1	1	1	0	1	1	1	0	0	1	1	10	Medium
TH-6 (old Hanover 7)	Open dialog and develop relationship with Suburban Propane to discuss potential hazards and identify protective measures.	1	1	1	0	1	0	0	0	0	1	0	0	1	0	6	Low
TH-7 (old Hanover 8-10)	Develop list of RL and SRL properties and obtain elevation or acquisition interest from homeowners.	0	1	1	1	1	1	0	0	1	1	0	0	1	1	9	Low
TH-8 (old Hanover 11)	Develop all-hazards public education and outreach program for hazard mitigation and preparedness to include update of webpage with hazard mitigation and preparedness information.	1	1	1	1	1	1	0	0	1	1	1	0	1	1	11	Medium
TH-9	Revitalize CERT program to include recruitment, training and acquisition of equipment.	1	1	1	1	1	1	0	0	1	1	1	0	1	1	11	Medium

Note: Refer to Section 6 which contains the guidance on conducting the prioritization of mitigation actions.



#### **9.13.6 Future Needs To Better Understand Risk/Vulnerability**

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None at this time.

#### **9.13.7 Hazard Area Extent and Location**

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Hazard area extent and location maps have been generated for the Township of Hanover that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Township of Hanover has significant exposure. These maps are illustrated in the hazard profiles within Section 5.4, Volume I of this Plan.

#### **9.13.8 Additional Comments**

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None at this time.



Figure 9.13-1. Township of Hanover Hazard Area Extent and Location Map 1

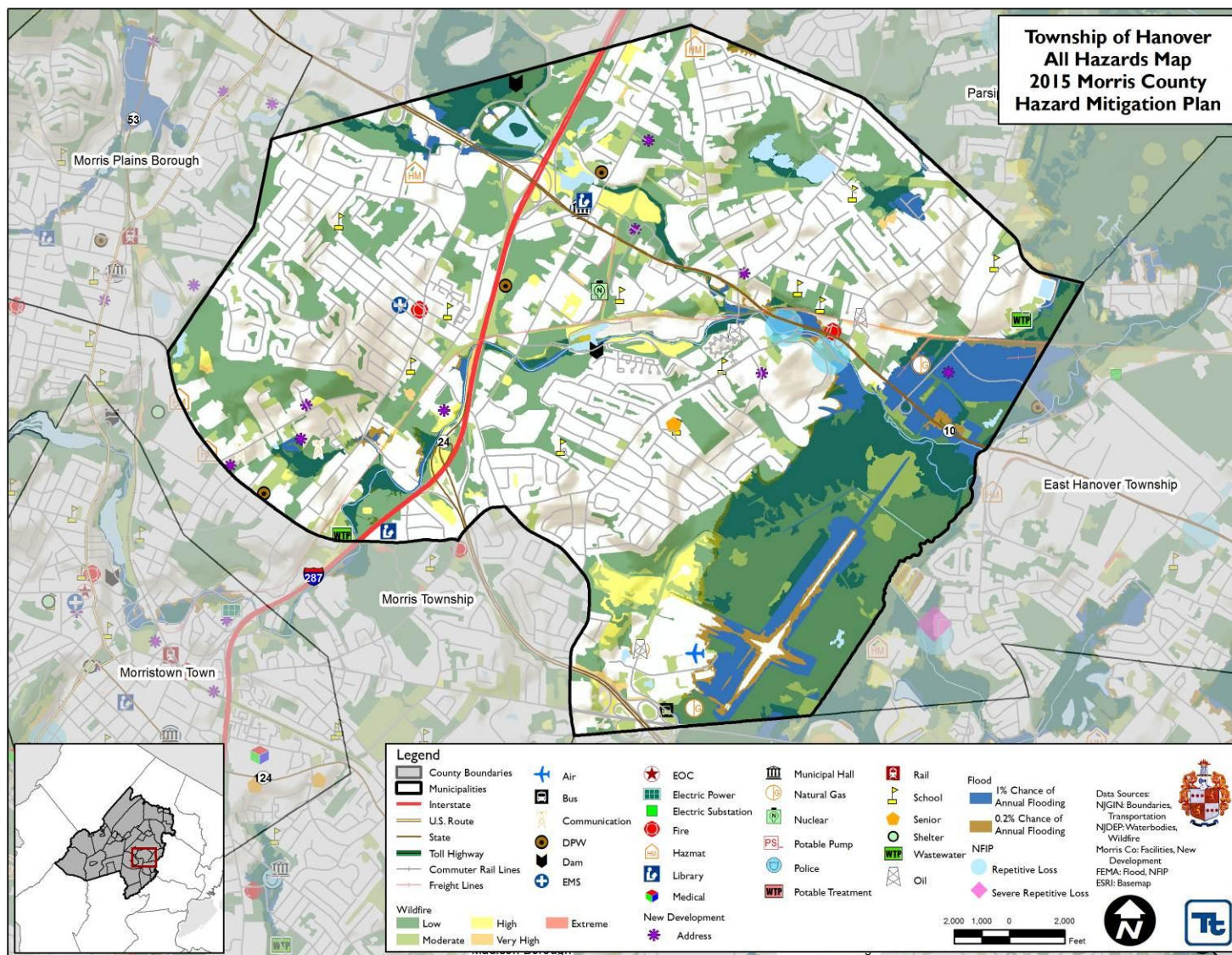
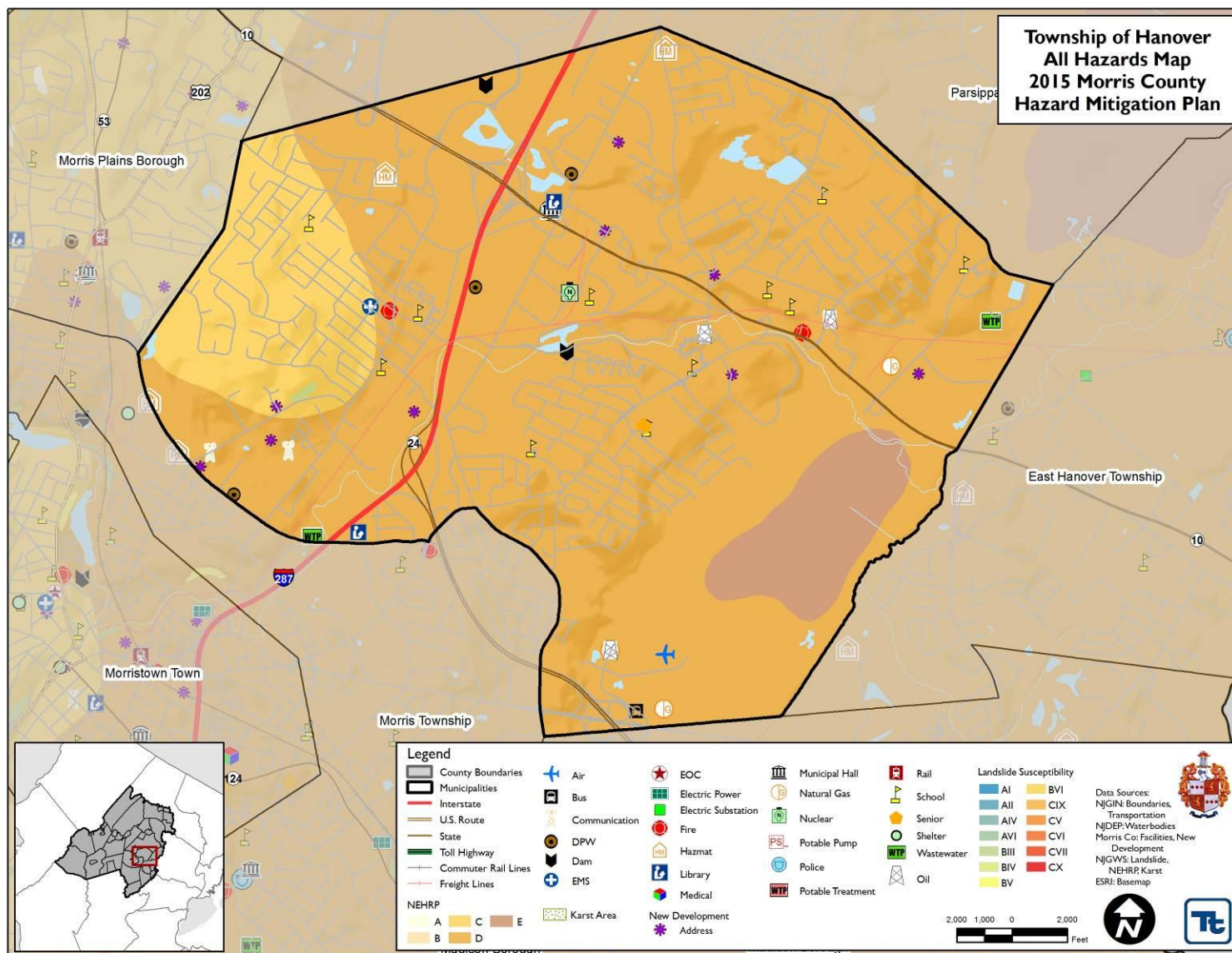






Figure 9.13-2. Township of Hanover Hazard Area Extent and Location Map 2





Action Number:

TH-1

Mitigation Action/Initiative:

Relocation of Whippany Fire Department

Assessing the Risk	
Hazard(s) addressed:	Flood
Specific problem being mitigated:	Flooding of critical facility
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	1. Relocate Whippany Fire Department
	2. Do nothing – current problem continues
	3. No other feasible options were identified
Action/Project Intended for Implementation	
Description of Selected Action/Project	Relocation of Whippany Fire Department on 440 Route 10.
Action/Project Category	SIP
Goals/Objectives Met	3, 4
Applies to existing and/or new development; or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	High
Priority*	High
Plan for Implementation	
Responsible/Lead Agency/Department	Fire Department
Local Planning Mechanism	Capital Improvement
Potential Funding Sources	HMGP, Municipal Budget
Timeline for Completion	Short Term/DOF
Reporting on Progress (Do not complete – this will be used for the 2020 Update)	
Date of Status Report/Report of Progress	Date: Progress on Action/Project:

\* Refer to results of Prioritization (page 2)





Action Number:

TH-1

Mitigation Action/Initiative:

Relocation of Whippany Fire Department

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	Reduce the impact of flooding to the fire department
Cost-Effectiveness	1	
Technical	1	
Political	1	Township property
Legal	1	
Fiscal	1	
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	0	
Local Champion	1	
Other Community Objectives	1	
Total	13	
Priority (High/Med/Low)	High	



Action Number:

TH-2

Mitigation Action/Initiative:

Retrofit building/secure structures (tent) outside of Cedar Knolls Fire House

Assessing the Risk	
<b>Hazard(s) addressed:</b>	Flood, Severe Storm
<b>Specific problem being mitigated:</b>	Damage to Critical Facility and Equipment
Evaluation of Potential Actions/Projects	
<b>Actions/Projects Considered (name of project and reason for not selecting):</b>	1. Expand and Retrofit Building to secure all critical equipment
	2. Do nothing – current problem continues
	3. No other feasible options were identified
Action/Project Intended for Implementation	
<b>Description of Selected Action/Project</b>	Retrofit building/secure structures (tent) outside of Cedar Knolls Fire House at 82 Ridgedale Avenue.
<b>Action/Project Category</b>	SIP
<b>Goals/Objectives Met</b>	3, 4
<b>Applies to existing and/or new development; or not applicable</b>	Existing
<b>Benefits (losses avoided)</b>	High
<b>Estimated Cost</b>	Medium
<b>Priority*</b>	High
Plan for Implementation	
<b>Responsible/Lead Agency/Department</b>	Board of Fire Commissioner District 3
<b>Local Planning Mechanism</b>	Capital Improvement
<b>Potential Funding Sources</b>	HMGP, Municipal Budget
<b>Timeline for Completion</b>	Short Term/DOF
Reporting on Progress ( <i>Do not complete – this will be used for the 2020 Update</i> )	
<b>Date of Status Report/ Report of Progress</b>	Date: Progress on Action/Project:

\* Refer to results of Prioritization (page 2)



Action Number:

Th-2

Mitigation Action/Initiative:

Retrofit building/secure structures (tent) outside of Cedar Knolls Fire House

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	Reduce impact of flooding to fire house
Cost-Effectiveness	1	
Technical	1	
Political	1	Township property
Legal	1	
Fiscal	1	
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	0	
Local Champion	1	
Other Community Objectives	1	
Total	13	
Priority (High/Med/Low)	High	



Action Number: TH-3 and TH-4

Mitigation Action/Initiative: Backup Power

Assessing the Risk	
Hazard(s) addressed:	All
Specific problem being mitigated:	Loss of power to critical facilities in the Township
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	1. Purchase and install generators at critical facilities
	2. Do nothing – current problem continues
	3. No other feasible options were identified
Action/Project Intended for Implementation	
Description of Selected Action/Project	Purchase and install generators at the following locations in the Township: <ul style="list-style-type: none"><li>• DPW on 25 North Jefferson Road, Whippany</li><li>• Community Center (warming/cooling center) on 15 North Jefferson Road (need to conduct a load analysis to determine if current generator can supply air conditioning to building)</li></ul>
Action/Project Category	SIP
Goals/Objectives Met	3, 4
Applies to existing and/or new development; or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	Medium
Priority*	Medium
Plan for Implementation	
Responsible/Lead Agency/Department	DPW, Engineer
Local Planning Mechanism	Capital Improvement
Potential Funding Sources	HMGP, Municipal Budget
Timeline for Completion	Short Term/DOF
Reporting on Progress (Do not complete – this will be used for the 2020 Update)	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

\* Refer to results of Prioritization (page 2)



Action Number: TH-3 and TH-4

Mitigation Action/Initiative: Backup Power

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Provide a shelter for residents impacted by emergencies
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	1	All
Timeline	0	
Local Champion	1	
Other Community Objectives	1	
Total	11	
Priority (High/Med/Low)	Medium	